WIRELESS COMMUNICATION SYSTEM USING BLOCK FILTERING AND FAST EQUALIZATION-DEMODULATION AND METHOD OF OPERATION

ABSTRACT OF THE DISCLOSURE

5   There is disclosed a transceiver for use in a base station (BS) of a fixed wireless network that communicates with a plurality of subscriber transceivers via time division duplex (TDD) channels. The BS transceiver comprises: 1) a receiver front-end for receiving data burst transmissions from the plurality of subscriber

10   transceivers in an uplink portion of a TDD channel, wherein the receiver front-end demodulates the received data burst transmissions into a digital baseband signal in-phase (I) signal and a digital baseband quadrature (Q) signal; 2) a first frequency domain feedforward equalization filter for receiving the I signal

15   and performing a Fast Fourier Transform on a block of N symbols in the I signal to produce a first symbol estimate sequence; 3) a second frequency domain feedforward equalization filter for receiving the Q signal and performing a Fast Fourier Transform on a block of N symbols in the Q signal to produce a second symbol

20   estimate sequence; 4) an adder for receiving the first signal estimate sequence on a first input and the second signal estimate sequence on a second input and producing a combined symbol estimate sequence; 5) a slicer for receiving and quantizing the combined

symbol estimate sequence to produce a sequence of decided symbols;

and 6) a time domain feedback filter for receiving the sequence of

decided symbols and generating a symbol correction sequence that is

applied to a third input of the adder.